

WHAT IS CLAIMED IS:

1. A method of manufacturing a flash memory device, comprising the steps of:

performing an ion implantation for controlling a threshold voltage on a  
5 semiconductor substrate;

performing a spike annealing for controlling a doping concentration and a doping profile of an implanted dopant;

forming a device isolation film for isolating an active area and a field area on the semiconductor substrate;

10 forming a gate electrode in which a tunnel oxide film, a floating gate electrode, a dielectric film, and a control gate electrode are deposited on the active area; and

performing an ion implantation for forming junctions on the semiconductor substrate in both sides of the gate electrode to form a DDD  
15 junction structure.

2. The method of manufacturing a flash memory device according to claim 1, wherein the ion implantation for controlling a threshold voltage is performed by using a p-type dopant with an ion implantation energy of 5 KeV  
20 to 50 KeV and a dose of  $1E11 \text{ ion/cm}^2$  to  $1E13 \text{ ion/cm}^2$ .

3. The method of manufacturing a flash memory device according to claim 2, wherein  $\text{BF}_2$  is used as the p-type dopant.

4. The method of manufacturing a flash memory device according to claim 1, wherein the spike annealing is performed under  $\text{NH}_3$ ,  $\text{H}_2$ , or  $\text{N}_2$  atmosphere at a temperature in the range of  $900^\circ\text{C}$  to  $1,100^\circ\text{C}$  with a heating rate of  $100^\circ\text{C}/\text{sec}$  to  $250^\circ\text{C}/\text{sec}$ .

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